In the claims:

1. (Currently amended) A process for removing at least one of thiophene and thiophene compounds from liquid fuel, the method comprising the step of:

contacting the liquid fuel with ~~an~~a dehydrated adsorbent which preferentially adsorbs the at least one of thiophene and thiophene compounds, at a selected temperature and pressure, thereby producing a non-adsorbed component and a thiophene/thiophene compound-rich adsorbed component, wherein the dehydrated adsorbent comprises at least one of a metal and a metal ion, the at least one of metal and metal ion adapted to form π-complexation bonds with the at least one of thiophene and thiophene compounds, and wherein the preferential adsorption occurs by π-complexation, and wherein, prior to contacting the liquid fuel with the dehydrated adsorbent, the process comprises pretreating ~~the~~an adsorbent to form the dehydrated adsorbent, the pretreatment process comprising the steps of:

calcining the adsorbent between about 350°C and about 450°C in an inert, dry atmosphere for an amount of time ranging between about zero hours and about 20 hours; and

then cooling the adsorbent.

2. (Original) The process as defined in claim 1 wherein the amount of calcining time ranges between about 5 hours and about 15 hours.

3. (Original) The process as defined in claim 1 wherein the amount of calcining time is about 10 hours.

4. (Original) The process as defined in claim 1 wherein the selected temperature and pressure is ambient temperature and ambient pressure.

5. (Currently amended) The process as defined in claim 1, further comprising the step of adding a guard bed adjacent an inlet to the dehydrated adsorbent such that the liquid fuel contacts the guard bed prior to contacting the dehydrated adsorbent.

6. (Original) The process as defined in claim 5 wherein the guard bed has as a main component thereof at least one of activated carbon, activated alumina, silica gel, zeolites, clays, pillared clays, diatomaceous earth, porous sorbents, and mixtures thereof.

7. (Original) The process as defined in claim 1 wherein the thiophene compounds include at least one of thiophene, methyl-thiophene, benzothiophene, methyl-benzothiophene, dibenzothiophene, 4-methyl-dibenzothiophene, 4,6-dimethyl-dibenzothiophene, 3,6-dimethyl-dibenzothiophene, and mixtures thereof.

8. (Currently amended) The process as defined in claim 1 wherein at ambient temperature and 10^{-5} atm vapor pressure, the dehydrated adsorbent adsorbs more than about 1 mmol/gram of the at least one of thiophene and thiophene compounds.

9. (Currently amended) The process as defined in claim 1 wherein the dehydrated adsorbent comprises a carrier having a surface area, the carrier having a monolayer of a d-block transition metal compound dispersed on ~~substantially the entire~~ at least some of the surface area, the metal compound releasably retaining the at least one of thiophene and thiophene compounds; and the carrier comprising a plurality of pores having a pore size greater than the effective molecular diameter of the at least one of thiophene and thiophene compounds; and wherein the process further comprises the step of changing at least one of the pressure and temperature to thereby release the thiophene/thiophene compound-rich component from the dehydrated adsorbent.

10. (Currently amended) The process as defined in claim 9 wherein at ambient temperature and 10^{-5} atm vapor pressure, the dehydrated adsorbent adsorbs more than about 1 mmol/gram of the at least one of thiophene and thiophene compounds.

11. (Original) The process as defined in claim 9 wherein the amount of calcining time is about 10 hours.

12. (Currently amended) The process as defined in claim 9, further comprising the step of adding a guard bed adjacent an inlet to the dehydrated adsorbent such that the liquid fuel contacts the guard bed prior to contacting the dehydrated adsorbent.

13. (Original) The process as defined in claim 12 wherein the guard bed has as a main component thereof at least one of activated carbon, activated alumina, silica gel, zeolites, clays, pillared clays, diatomaceous earth, porous sorbents, and mixtures thereof.

14. (Original) The process as defined in claim 9 wherein the thiophene compounds include at least one of thiophene, methyl-thiophene, benzothiophene, methyl-benzothiophene, dibenzothiophene, 4-methyl-dibenzothiophene, 4,6-dimethyl-dibenzothiophene, 3,6-dimethyl-dibenzothiophene, and mixtures thereof.

15. (Previously presented) The process as defined in claim 1 wherein the liquid fuel is at least one of unleaded gasoline and diesel fuel.

16. (Currently amended) The process as defined in claim 1 wherein the dehydrated adsorbent comprises an ion-exchanged zeolite selected from the group consisting of zeolite X, zeolite Y, zeolite LSX, and mixtures thereof, the zeolite having exchangeable cationic sites, wherein at least one of the sites has at least one d-block transition metal cation present.

17. (Currently amended) The process as defined in claim 16 wherein the dehydrated adsorbent is at least one of Cu(I)Y zeolite and Ag(I)Y zeolite.

18. (Currently amended) The process as defined in claim 9 wherein the dehydrated adsorbent carrier is silica and wherein the metal compound is silver nitrate.

19. (Currently amended) The process as defined in claim 1 wherein the method further comprises the step of changing at least one of the pressure and temperature to thereby release the thiophene/thiophene compound-rich component from the dehydrated adsorbent.

20. (Currently amended) The process as defined in claim 1 wherein, before contact with the dehydrated adsorbent, the liquid fuel has a high concentration of aromatic compounds, and a low concentration of thiophene/thiophene compounds.

24 - 27. (Cancelled)